

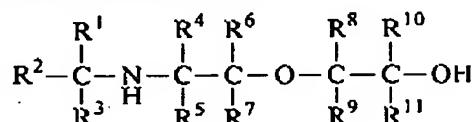
U.S. Serial No. 10/587,206
 Amendment Under 37 CFR 1.312
 Family Number: P2004J004

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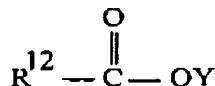
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AMENDMENTS TO THE CLAIMS

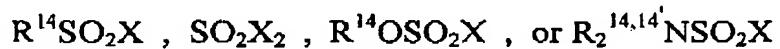
1. (currently amended) A method for the synthesis of severely sterically hindered secondary aminoether alcohols of the formula



wherein R^1 and R^2 are each selected from the group consisting of alkyl, hydroxylalkyl radicals having 1 to 4 carbon atoms or in combination with the carbon atom to which they are attached they form a cycloalkyl group having 3 to 8 carbon atoms, and R^3 is selected from the group consisting of hydrogen, alkyl, hydroxylalkyl radicals having 1 to 4 carbon atoms, and mixtures thereof, and R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , R^{10} and R^{11} are the same or different and are selected from the group consisting of hydrogen, alkyl and hydroxylalkyl radicals having 1 to 4 carbons provided that at least one of R^4 or R^5 bonded to the carbon atom directly bonded to the nitrogen atom is an alkyl or hydroxylalkyl radical when R^3 is hydrogen, the process involving reacting an organic carboxylic acid or salt of a carboxylic acid of the formula



wherein R^{12} is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, aryl radicals bearing hydrogen or one or more $\text{C}_1\text{-C}_{10}$ alkyl groups substituted thereon, and mixtures thereof, and Y is selected from the group consisting of hydrogen, alkali metal, ammonium, and mixtures thereof, with a sulfonyl halide, a sulfonyl halide, a mixed sulfonyl ester halide, or a mixed sulfonyl amide halide of the formula

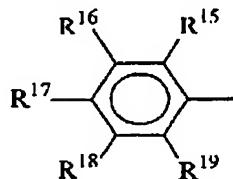


wherein X is selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and R^{14} and $\text{R}^{14'}$ are the same or different and each is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, haloalkyl radicals of the formula

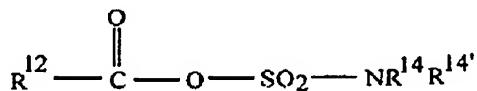
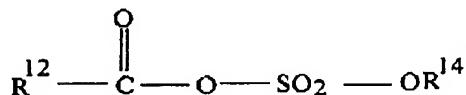
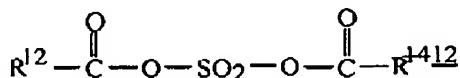
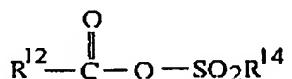
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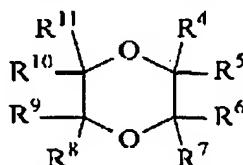
$C_nH_{(2n+1)-w}Z_w$ wherein n is 1 to 4, Z is selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and w ranges from 1 to 5, and aryl radicals



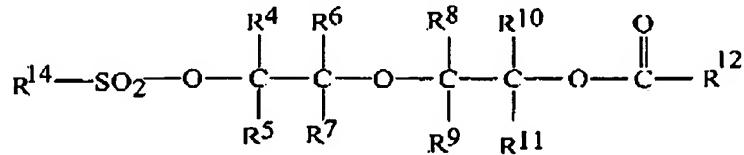
wherein R¹⁵, R¹⁶, R¹⁷, R¹⁸, and R¹⁹ are the same or different and are selected from hydrogen and alkyl radicals having 1 to 20 carbon atoms, and mixtures thereof, to yield acyl sulfonate material of the general formula



which is then reacted with a dioxane of the formula

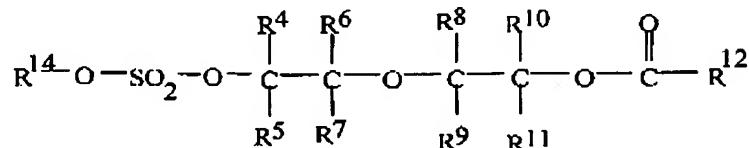
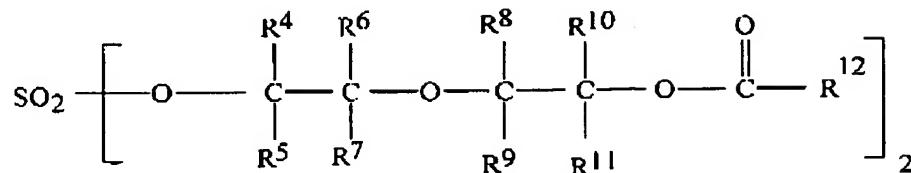


wherein R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are the same or different and are selected from hydrogen, alkyl and hydroxyalkyl radicals having 1 to 4 carbons to yield

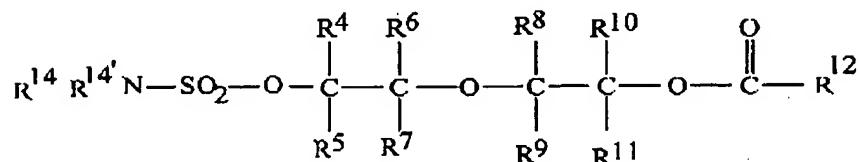


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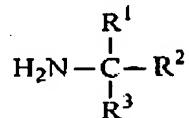
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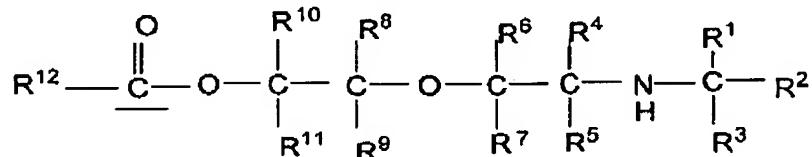
or



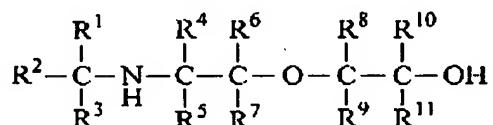
which is then aminated with an alkylamine of the formula



wherein R^1 , R^2 , and R^3 are as previously defined to yield



which is then hydrolyzed with base to yield



2. (original) The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using sulfonyl halide of the formula $\text{R}^{14}\text{SO}_2\text{X}$.

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3. (original) The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using sulfonyl halide of the formula SO_2X_2 .
4. (original) The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the mixed sulfonyl ester halide of the formula $\text{R}^{14}\text{OSO}_2\text{X}$.
5. (original) The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the mixed sulfonyl amide halide of the formula $\text{R}_2^{14,14'}\text{NSO}_2\text{X}$.
6. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein R^1 , R^2 and R^3 are methyl radicals.
7. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are hydrogen.
8. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein R^{15} , R^{16} , R^{18} , and R^{19} are hydrogen and R^{17} is hydrogen or methyl.
9. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein the base is selected from alkali metal hydroxide, alkali metal alkoxide, or alkali metal carbonate.
10. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein Y is hydrogen or sodium.
11. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein R^1 , R^2 and R^3 are methyl, R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are hydrogen, R^{15} , R^{16} , R^{18} , and R^{19} are hydrogen, R^{17} is hydrogen or methyl, and Y is hydrogen, sodium, or ammonium.

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12. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein the acyl sulfonate is made by reacting organic carboxylic acid or the salt of a carboxylic acid with the sulfonyl halide, sulfonyl halide, mixed sulfonyl ester halide or mixed sulfonyl amide halide at a temperature in the range of between about -20 to 200°C at a pressure between about 1 bar and 100 bars, the acyl sulfonate is reacted with the dioxane at a molar ratio of dioxane to acyl sulfonate in the range of 1:1 to 10:1 at a temperature of between about 50°C to about 200°C to yield a cleavage product, the cleavage product and the alkyl amine reacted at an amine to sulfonate group ratio ranging from about stoichiometric to about 10:1 at pressure of from about atmospheric (1 bar) to about 100 bars at temperature of from about 40°C to about 200°C, and the resulting aminated product is hydrolyzed with base at a temperature from about 20°C to about 110°C.

13. (currently amended) The method of according to claim 1, 2, 3, 4 or 5 wherein the organic carboxylic acid or the salt thereof, the sulfonyl halide, sulfonyl halide, mixed sulfonyl ester halide or mixed sulfonyl amide halide and the dioxane are combined in a single step to produce a reaction mixture, the reaction mixture being heated at a temperature of between about 50°C to about 200°C to produce the cleavage product, the cleavage product and the alkylamine are reacted at an amine to cleavage product ratio ranging from about stoichiometric to about 10:1 at a pressure from about atmospheric (1 bar) to about 100 bars at a temperature of from about 40°C to about 200°C, the resulting aminated product being reacted with base at a temperature from about 20°C to about 110°C.